

BOTANY.—*Casuarinas of America identified by branchlets and seeds.*¹
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In the task of identifying specimens of *Casuarina* sent in to the Bureau of Plant Industry from various parts of the country, the writer was faced with the perplexity that the majority of samples consisted only in branchlets, while the keys in all books are based mainly on flowers and fruits. In order to overcome this difficulty a special study was made of the branchlets of plants known from their reproductive characters to be correctly identified, and a simple key to species was then based on branchlets.

Another useful diagnostic character was found in the seeds which authors have much neglected, though they are quite distinctive. As most of the plants of *Casuarina* received from foreign correspondents consist only in seeds and these, as it has proved, often wrongly labelled, it has seemed of value to indicate how *Casuarinas* may be identified from seeds.

All specimens of *Casuarina* in the National Herbarium, the Economic Herbarium of the Bureau of Plant Industry, and the seed collection of the Office of Foreign Seed and Plant Introduction have been examined, as well as those in the herbarium of Professor L. H. Bailey.

Casuarina, an Australasian genus, is now extensively grown in this country. As an ornamental and economic genus it is of coming importance.

In using the following key it should be recalled that the apparent leaves are really branchlets, and that the true leaves are reduced to teeth in a sheath around the nodes, as in *Equisetum*. Measurements, particularly of the branchlets, are important; as they are made in very small units it is essential to be accurate. A micrometer caliper is best for this purpose, though a millimeter ruler, read with a magnifying glass, will do.

KEY TO THE SPECIES OF CASUARINA CULTIVATED IN THE UNITED STATES

- A. Teeth 6-16, branchlets round or somewhat angular
- B. Internodes on full grown branchlets 7 mm. long or less.
- C. Branchlets 0.7-0.85 mm. thick; teeth 7 (6-8) in number, rarely more; mature cones about 1.3 cm. thick; seeds 6-8 mm. long, 1-3

¹ In *Plant Immigrants*, no. 217, the author has described the economic and ornamental uses of the *Casuarinas* growing in America. Descriptions of the trees as a whole are found there, as well as their horticultural ranges and histories in America.

- mm. broad, pale brown throughout, the wing thickish, twice as long as the seed body.....*C. equisetifolia*
- C. Branchlets 0.4-6.5 mm. thick, teeth 6-10
- D. Mature cones 13 mm. or more in diameter, seeds 3-4 mm. broad, 6.5-8 mm. long, the wing thin, pale brown, twice as long as the seed body, which is handsome chestnut brown; male flower-spikes interrupted; teeth 6-8.....*C. suberosa*
- D. Mature cones 10 mm. in diameter at the most, but generally much less; seeds 1-2 mm. broad, 3-4.5 mm. long, dull grayish white, with a short, thickish wing; male spikes dense; teeth 8-10.....*C. Cunninghamiana*
- B. Internodes on full grown branchlets more or less glaucous, thick (0.85-1.50 mm.)
- E. Branchlets 0.85-0.95 mm. thick; internodes 8-10 mm. long, teeth erect or appressed, not spreading, mostly 16 in number; cones about 12 mm. broad, seeds about 4 mm. long and 2 mm. broad, grayish white or pale brown, dull, the wing fairly thick and narrow, the midnerve not extruded; male spikes dense.....*C. glauca*
- E. Branchlets 0.95-1.50 mm. thick, internodes 13-27 mm. long, the approximately 10 teeth often spreading. Cones 25 mm. or more thick; seeds 8-12 mm. long, 3-4.5 mm. broad, the seed-body chocolate brown flecked with white, the wing broad, long pale, thin, with decidedly excurrent midnerve. Male spikes elongated and at first dense, at maturity loosely flowered.....*C. stricta*
- A. Teeth only 4; branches markedly quadrangular
- F. Internodes about 7 mm. long; branchlets not forking, about 0.5 mm. thick; seeds 7-9 mm. long, 3-4 mm. broad, somewhat shining brown, not wrinkled, the wing thin and transparent.....*C. torulosa*
- F. Internodes 3-4 mm. long; branchlets forking, the ultimate divisions about 0.7 thick; seeds 12-18 mm. long, 4-8 mm. broad, dull brown and wrinkled; wing relatively thick.....*C. sumatrana*